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ABSTRACT

This summary and evaluation of the research published from 1963 to 1970 deals with inservice teacher training in reading. The major focus is on a review of the research on what types of inservice education are needed and are most effective. Investigations conducted recommend that inservice programs be based on the current needs of teachers. However, no evidence in the surveys reviewed demonstrated that they were based on the needs of teachers. It was concluded that the most effective inservice programs took place before the opening of school followed by group meetings and individual conferences during the school year. A synthesis of the research findings indicates the weaknesses in design, procedures, measurement, and data collection. Recommendations concerning further research include: providing more complete information relating to samples, methods, materials, and instruments; utilizing a variety of evaluation techniques; and stating the limitations of the study. Recommended areas for further research include research assessing the needs of teachers and basing programs on those needs and research to include secondary school programs. (TB)

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Inservice Teacher Training In Reading

Lawrence G. Moburg
Indiana University

ERIC/CRIER and the International Reading Association

Reading Information Series: WHERE DO WE GO?

1972

The International Reading Association

Six Tyre Avenue

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Reception to the *Reading Information Series: WHERE DO WE GO?* has been enthusiastic and encouraging to those of us who are interested in improving both the methodology and the substance of reading research. Lawrence G. Moburg's paper is the fourth in a series which reflects the continued careful and thoughtful development by Richard A. Earle.

James L. Laffey
Director of ERIC/CRIER

The International Reading Association attempts, through its publications to provide a forum for a wide spectrum of opinion on reading. This policy permits divergent viewpoints without assuming the endorsement of the Association.

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Foreword

ERIC/CRIER and IRA are concerned with several types of information analysis and their dissemination to audiences with specific professional needs. Among these is the producer of research—the research specialist, the college professor, the doctoral student. It is primarily to this audience that the present series is directed, although others may find it useful as well. Therefore, the focus will rest clearly on the *extension* of research and development activities: "Where do we go?" Our intent is not to provide a series of exhaustive reviews of literature. Nor do we intend to publish definitive statements which will meet with unanimous approval. Rather, we solicit and present the thoughtful recommendations of those researchers whose experience and expertise has led them to firm and well-considered positions on problems in research.

The purpose of this series of publications is to strengthen the research which is produced in reading education. We believe that the series is contributing helpful perspectives on the research literature and stimulating suggestions to those who perform research in reading and related fields.

Richard A. Earle
Series Editor

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Introduction

Our schools are today the object of sweeping and critical examination by individuals profoundly dissatisfied with the results of traditional American education. While no aspect of contemporary public education has completely escaped the critics' attention, much of the criticism has been directed at the person in closest daily contact with students—the teacher. Whether or not the various charges leveled against teachers are warranted, there is little doubt that the teacher's role is seen as essential to successful student learning in all areas of the curriculum. In the area of reading instruction, research has identified the teacher as the crucial variable in the success or failure of the reading program.

Given the importance of the teacher within the reading program, three assumptions may be made. The first is that the quality of a teacher's professional preparation determines, to a great extent, whether that teacher is a successful reading instructor. The second assumption is that a teacher's professional preparation should consist not only of preservice course work and activities but of a continuous program of inservice instruction. Finally, it is assumed that, regardless of the quality of preservice programs, such programs are inadequate and insufficient to maintain the teacher on the job. A comprehensive inservice program will still be needed. While the literature contains a number of articles or published descriptions of inservice programs in reading, relatively little research on the topic has been conducted.

This paper summarizes and evaluates the research published since 1963 which deals with inservice teacher training in reading. Descriptions of programs and journal articles expressing expert opinion are not included. The review of research concerned with inservice pro-

grams in reading is followed by a synthesis of research findings. Based on the review and synthesis, recommendations for future research in the area are made. The paper concludes with a bibliography of the studies reviewed.

Review of literature, 1963-1970

What types of inservice education are needed?

The first five studies to be reviewed have attempted to determine the need for inservice education in reading, the type of inservice programs which are most preferred by teachers, the content of such programs, and the role of the reading specialist as an inservice leader. In all five cases, data were gathered primarily through questionnaires which required respondents to identify needs or problems from the instruments' *a priori* alternatives.

A portion of a nationwide survey conducted by Austin and Morrison (1963) dealt with the means by which school systems have attempted to increase teacher knowledge and improve teacher performance in reading instruction. The investigators concluded that vast improvements in the conduct and content of inservice education programs in reading were urgently needed. As a result, their recommendations for continuous year-to-year inservice programs contain the following provisions: 1) that teachers be provided released time; 2) that the participants be actively involved in planning the program; 3) that group size be limited to allow active participation; and 4) that case studies and audiovisual aids be used as a means of developing theoretical concepts in realistic settings.

Adams (1964) echoed Austin and Morrison's recommendation concerning the active participation of teachers in determining the content of inservice programs. The nucleus of an inservice program in reading should consist of problems connected with reading instruction which are of primary concern to the teachers themselves. Accordingly, Adams' study attempted to analyze teacher responses to a questionnaire designed to present a comprehensive statement of teachers' instructional needs in reading.

The questionnaire consisted of multiple-choice, agree-disagree, and four point value items organized into six major categories: 1) nature of the reading program, 2) readiness and motivation, 3) individualization and ways of working, 4) teaching the reading skills, 5) materials and resources, and 6) evaluation. Two hundred sixty-eight randomly selected teachers from 52 randomly selected public elementary schools in Florida responded. The respondents identified 28 aspects of reading instruction as areas in which greater understanding was needed. The areas of greatest need occurred in the diagnosis and treatment of corrective and/or remedial reading problems and in ways of meeting individual differences; areas of least need included the library, grouping, and ways to attack new words.

The study does provide a means of selecting topics for inservice meetings, but the responses of teachers of all six grades were included in the analysis of data. It would have been more helpful to learn the greatest needs felt by the primary teachers and the greatest needs of the intermediate teachers, so that more specific planning could be directed toward these groups. In addition, Adams' questionnaire made no provision for free responses by the teachers surveyed and thus could not provide information on areas or problems beyond the boundaries of the instrument. Clymer (1964), in commenting on this report, notes that a major problem in interpreting such a study is determining the degree to which teachers are aware of their needs.

Smith, Otto, and Harty (1970) surveyed 225 elementary teachers in an attempt to discover guidelines for improving preservice and inservice training of teachers in reading. Responses to their four-item questionnaire were classified on the basis of each respondent's present teaching level (primary or intermediate) and years of service as a teacher. They found that primary teachers were more satisfied with their preservice training than were the intermediate teachers. Both groups felt the need for more information about providing for the disabled reader and diagnosing individual instructional needs. Of minor interest to the respondents was information on grouping students and proper use of the library or instructional materials center. Begin-

ning teachers expressed the need for individual conferences with a reading specialist while teachers with two or more years of experience were more interested in noncredit classes for teachers of a selected grade level.

By rank ordering a list of eight approaches to inservice education, the respondents indicated a desire for programs which differentiate among teachers at different grade levels and with different terms of experience. This desire for more information about 12 specific areas of reading instruction identified needs which should serve as the content for such programs. The areas of greatest need and of least need are in agreement with Adams' (1963) findings. The report by Smith, *et al.* contains the questions asked and the manner in which the answers were classified. Enough information is provided so that the survey could be replicated by others interested in surveying their own school districts in a similar manner.

A study reported by Stauffer (1966) is also of value in considering the problem of inservice education. As a followup to an institute for reading consultants and reading specialists, Stauffer asked the participants to complete a questionnaire which inquired into 11 facets of the reading specialist's role. He found that 87 percent of the respondents felt that working individually with teachers merited "considerable" to "major" emphasis, but that conducting inservice programs in reading did not receive a rating of major emphasis. While Stauffer does not discuss the implications of these findings, one reasonable conclusion is that the reading specialists who responded in this survey—either through personal experience or through administrative arrangement—found they could be most effective when working with individual teachers.

Wylie (1969) administered a four-item questionnaire to 78 classroom teachers and 84 reading consultants to determine how teachers and consultants view the role(s) of the elementary school reading consultant. He found some "dramatic differences" in comparing the teachers' perceptions of the reading consultant's role with the perceptions of the consultants themselves. Teachers felt the reading consultant to

be most effective when providing aid through personalized, informal small group activities. Consultants, on the other hand, favored methods which allowed them to work with greater numbers of teachers. Teachers felt the most important characteristics of a reading consultant to be knowledge of reading, ability to criticize constructively, and willingness to consult. Reading consultants cited the ability to establish rapport, to criticize constructively, and to treat all teachers alike as the most important characteristics.

The investigator classified the respondents on the basis of their years of teaching or consulting experience, but he did not analyze the responses to each question in terms of this information. It would be interesting to know, for example, whether beginning teachers expect different services from the reading consultant than do teachers with five or more years of experience. Wylie does not describe the format of the questionnaire, but alternative responses to each question were doubtlessly provided in order to establish a basis for comparison of teacher and consultant answers. He does not indicate whether respondents were free to write personal answers to the questions or whether they were restricted to the responses provided on the instrument.

Which types of inservice education are most effective?

The studies reviewed below are concerned with providing some sort of inservice help to teachers for a specified period of time and then measuring any change in teacher knowledge, performance, and/or attitudes. Trione (1967), Wall (1965), and Morrill (1966) deal with the value and effectiveness of providing inservice assistance to the individual teacher, while the remaining investigators apply their programs to groups of teachers. In some cases, significant improvement in student reading achievement as a result of the inservice program is also investigated.

Trione (1967) investigated the effectiveness of teamwork between a consultant and individual teachers. Specifically, he chose to investi-

gate the value of repeated consultations with individual teachers in relation to the teacher's effectiveness as revealed by student reading improvement. Improvement in teacher effectiveness was accomplished by the consultant in changing teacher attitudes toward specific student behaviors and in increasing teacher knowledge of principles and methods of reading instruction. The criterion of teacher effectiveness was established to be the mean reading improvement of the teacher's class over one full school year.

Working with fourth grade teachers, Trione randomly selected nine teachers as the experimental group with the remaining eight teachers of the school district as the control group. Through a series of systematic, repeated interviews, the investigator attempted to help each teacher in the experimental group to understand and use general guidance and learning principles and to try new teaching techniques.

All fourth grade students were pretested with the Otis Group Test of Mental Ability and one form of the California Achievement Test. A second form of the California Achievement Test was given at the end of the school year. No significant difference was found in the means and variances of intelligence between the two groups or in the pretest achievement scores. At the end of the year, a significant difference was noted between the groups, indicating that the experimental group had made greater improvement in reading.

To evaluate teacher attitudes toward guidance practices and knowledge of principles and methods of teaching reading, Trione constructed a semi-standardized Guidance and Reading Scale, the items of which were derived from the log which the investigator kept of his activities with the experimental teachers. The results revealed significantly higher scores earned by the experimental group when compared to the control group and a norming group of elementary teachers. He concluded that the use of an inservice teacher-centered consultant resulted in greater pupil reading achievement, greater teacher awareness of guidance and reading principles, and an increase in the teacher's knowledge and confidence with new reading techniques.

In the report of his study, Trione devotes several paragraphs to his philosophy about the role of the consultant in working effectively with the classroom teacher. He does not, however, describe the specific means employed in his systematic use of repeated interviews. Since he attempted to control the study for the presence of possible nuisance variables and since his results were statistically significant, it would be helpful to know what specific methods of consultation were used, what teaching techniques and materials were suggested and what the consultant's role was as new techniques were attempted. Other questions raised but not answered by the study include: How often did the consultant meet with each teacher? How long was a typical consultation? When did the consultant meet with the teacher? Was the consultant given other responsibilities during the school year or was he primarily concerned with helping the nine experimental teachers? Did the consultant also observe the teachers in the classroom? Can this method of individual consultation be adapted for use with groups of teachers?

Another study on individual teacher improvement was reported by Wall (1965). His project was based on the assumption that the reading of professional books and periodicals by the teachers is a worthwhile activity and will increase the level of teacher effectiveness in the classroom. Wall designed a study to make education books and periodicals available to 13 elementary teachers (grades K-6). During a period of four weeks, each teacher received a total of at least eight periodicals and two books judged to be of professional interest to teachers. The materials were made available to the teachers on a regular basis, but whether they were read depended on the personal interest and motivation of the teachers. Both the experimental group and the 37 teachers comprising the control group had been administered two rating scales dealing with inservice education and teacher growth before the four-week experimental program. The same instruments were also administered as post-tests.

Wall's hypothesis stated that teachers in the experimental group would assign a higher ranking to the item "Reading of Educational

Books and Periodicals" when asked 1) to rank a series of inservice programs in order of their importance to the teacher and 2) to indicate how the teacher perceives this item in increasing the effectiveness of his classroom teaching. The treatment resulted in a positive change significant at less than the .30 level in terms of a ranking of the relative importance of this type of activity. No significant differences were found between pretest and post-test scores of either group on the question of the activity's effectiveness in improving classroom instruction. Experimental teachers did report that they had read a significantly greater number of professional books and journals at the end of the study. Wall concludes that, although neither of his hypotheses was supported, his study showed that significantly more educational publications will be read and/or referred to by teachers when such materials are made more accessible to them.

It is not surprising that the experimental teachers reported reading or referring to a greater number of professional materials. The study was designed to make such materials more readily available. The teachers did not perceive their readings of educational materials to be a factor in increasing their instructional effectiveness, however. Also, it would be helpful to know to what extent the participants were familiar with and/or read professional materials prior to the study. Finally, a question which was raised in an earlier study may also be asked here: To what extent are teachers able to perceive and judge any change in their teaching effectiveness over a short, four-week period?

The studies reviewed thus far have all considered some aspect of inservice education in relation to the individual teacher. The question of whether a reading consultant is more effective working with individual teachers or with groups of teachers was investigated by Morrill (1966). As a reading consultant, the investigator had noted great differences in the results of reading achievement tests among first grade classrooms in the same school system. She concluded that such differences were mainly a reflection of the varying degrees of effec-

tiveness of the individual teachers. Her study was designed to contrast two consultant roles: that of a consultant working with individual teachers with that of a consultant interacting with groups of teachers. She hoped to show that a consultant could be just as effective working with groups of teachers as with individuals.

Thirty-five first grade teachers were formed into two groups: A control group (Method I) where the usual consultant help was on a one-to-one basis given at the request of the teacher or her principal, and an experimental group (Method II) where no individual help was given but teachers were released from their classrooms for two half-days a month in order to meet with the consultant and the other teachers in their group. Morrill is vague about the specific means by which the teachers were selected for the two groups. Teacher and principal preference and years of experience were listed as the criteria for assigning teachers to the groups.

Based on Morrill's description, the semimonthly inservice sessions seemed to be workshops in which teachers could discuss problems, suggest solutions, and share ideas on teaching techniques and instructional materials. The consultant acted as a catalyst to improve the sharing.

The results of first grade achievement testing revealed no significant differences in the tests and groups taken as a whole. Subtest differences, when they did appear, favored the control group. Members of the experimental groups, through a questionnaire, reported that they appreciated released time for meetings and the opportunity to exchange ideas, suggestions, and materials. Morrill reports that beneficial effects of the group meetings became more noticeable in the school year following the study. Many of the Method II teachers reported feelings of confidence in their abilities to teach reading and feelings of satisfaction in the variety of instructional materials and ideas developed through the group meetings.

The primary value of this study is that it serves as a good example of poorly conceived and improperly executed research. Morrill's ques-

tionnaire (administered only to the teachers in the experimental group) indicated that the participants were happy to be released from class twice a month for group meetings, but this is hardly surprising. Austin and Morrision (1963), three years earlier, had also recommended released time as a means of fostering enthusiasms and a positive attitude among teachers. In fact, the issue of released time seems to be as vital to the success of the study as is the question of individual vs. group meetings. (It is interesting to speculate what results might have been obtained had Morrill met semimonthly with a group of 18 teachers at the end of the school day and with individual teachers on a released time basis.)

Morrill had hypothesized that changes in teacher attitude would be demonstrated in pupil achievement. However, there is no baseline data on attitudes available since neither group was administered a prestudy questionnaire. Moreover, since the post-study questionnaires administered to the experimental group revealed positive attitudes and there was no significant difference in pupil achievement between the two groups, one might conclude that teacher attitude plays no role in reading instruction. Morrill provides no information regarding the attitude of teachers in the control group.

Finally, the format of all 18 group meetings appears to be the same—a relatively unstructured group-sharing situation with no provision for planned instruction on the part of the reading consultant. Whether such a plan is the ideal one for a series of inservice education meetings is unknown but such a format should have been a factor mentioned by Morrill as a limitation of her study.

Kasdon and Kelly (1969) investigated the effect of an inservice education program utilizing simulation techniques on teacher awareness of student instructional reading levels. They identify the ability to select reading materials at appropriate instructional levels for each student as one of the most crucial problems a teacher faces.

Ninety-six classroom teachers in a middle-class suburban school district were randomly selected as participants and were then randomly

assigned to three samples. Each sample of 32 teachers consisted of eight teachers from each of four grade levels—grades 2 through 5. Sample I participated in an inservice program before the school year began. Sample II participated in the same inservice program after six weeks of the first semester and, therefore, after the teachers had organized their classrooms and had assigned basal reading materials to their students. Sample III, the control group, did not participate in the inservice program and were not aware that it was part of the study.

One pupil from the classroom of each of the 96 teachers was selected. Each student's reading level was determined through the administration of McCracken's Standard Reading Inventory. Pupil reading levels were then contrasted with the readability level (as determined by the Spache or Dale-Chall formulas) of the basal reader to which their teacher had assigned them. The dependent variable, then, was teacher awareness of the child's instructional reading level as represented by the particular level of basal reader selected by the teacher for the student.

Kasdon and Kelly concluded that the simulation procedures used in their study proved to be an effective inservice technique. They found that such inservice training must take place before teachers have had an opportunity to develop a mental set regarding the assignment of reading materials to students. The investigators claim that their study shows the feasibility of a pure research design for evaluating an inservice program for teachers. The superiority of their study to others reviewed so far is shown by 1) the inclusion of information needed for replicating the study, 2) statistical data on teacher and pupil characteristics, 3) complete narrative accounts of the statistical analysis, 4) attempts to control for several independent variables, and 5) the analysis of variance (ANOVA) tables summarizing the treatment of data.

However, the investigators do not report whether the teachers who received preschool, summer instruction were compensated for the time spent in the five two-hour sessions, nor whether the second

group (Sample II) were given released time to attend the five sessions or whether they participated after school or on Saturdays. The study design raises several other questions. Even though a pretest to determine the participant's knowledge of methods of determining instructional reading levels may have forewarned the teachers (particularly in Groups II and III) and thus biased the study, do we know whether all teachers would have used some means of determining instuctional levels without the benefit of the inservice instruction? Were the teachers free to place students in basal readers after determining their instructional levels? That is, were there no administrative restrictions? If the situation called for it, would a third grader be given a fifth-grade reader or a fifth grader a second-grade reader? Did the Sample I teachers administer the informal inventory to all 29.1 children (mean class size, Sample I)? Some means of observing randomly selected teachers in all three groups would indicate the extent to which the informal inventories were actually used in the classroom.

Comprehensive reading programs at the secondary level should include reading instruction in the various subject matter areas. Most secondary teachers, however, have not had training in the teaching of reading. Smith and Otto (1969) conducted a personal reading improvement course for secondary school teachers, ostensibly designed to improve the reading abilities of the participating teachers. However, the investigators also felt that the course would be a means of convincing secondary teachers that reading instruction is appropriate and valuable beyond the elementary school. The techniques used with the teachers could be applied by these teachers in working with their students.

The reading improvement course consisted of seven two-hour sessions which met on consecutive Monday evenings. Nineteen junior and senior high school teachers volunteered for the course; four reading specialists, working in teams of two, served as instructors. The instructors were cautioned not to make reference to possible application of their methodology to secondary school classes. All subjects were pretested with one form of a standardized reading test and a

fourteen-item attitude inventory during the first instructional session. The inventory was designed to assess the subjects' attitudes toward reading instruction in the content areas. The attitude inventory and a second form of the reading test were administered during the final session.

Although the post-instruction scores on the reading test were substantially higher than the entering scores, there were no positive changes in attitude toward reading instruction in the content areas. In fact, as a result of the course, the participants were more firmly convinced that the teaching of reading is best handled by reading specialists. One week after the final class meeting, all participants received a questionnaire which inquired into the course's effects on the subjects' teaching strategies. Thirteen participants felt they were more able to improve their students' reading because of the course. Eleven reported that they were now willing to include reading instruction in their regular instructional programs.

Smith and Otto's primary purposes for conducting the reading improvement classes were to change teacher attitudes and increase teacher knowledge in regard to content area reading instruction. The results of the followup questionnaire provide some evidence that participants had modified their feelings regarding their capabilities as teachers of reading. The investigators, however, do not include the results of the pre- and post-attitutde inventories in their report, and so there is no way of knowing the original attitude of the subjects toward reading instruction in the content areas. Smith and Otto speculate that the use of four reading specialists to teach 19 students may have influenced the subjects in their view that reading instruction is best handled by reading specialists. If a single instructor had taught the course, this weakness might have been controlled.

Schirmer and Navarre (1968) evaluated the effects of a summer remedial reading seminar for 10 secondary teachers and 26 "disabled" readers. The teachers had had little or no previous experience in teaching reading. All were volunteers and all were paid for their time at their regular rate of pay. The investigators provide no other infor-

mation about the teachers' backgrounds, previous teaching experience, content area specialties, or reasons for volunteering.

During the first week of the seminar the teachers received instruction in the use of various diagnostic reading instruments. In the following five weeks the first hour of the morning was spent by the teacher preparing for instruction of three or four students who had been identified by their regular teachers as being "seriously disabled" in reading, and the last hour of the morning was used to evaluate and plan. Afternoons were spent in seminars, engaging in professional reading, preparing materials, and planning. Actual instruction occurred two hours each morning.

At the end of the six-week seminar, the teachers' growth in identifying and correcting reading problems was assessed through an instructor-developed test. The same test had been administered at the beginning of the seminar. Pretesting and post-testing was done with the Minnesota Teacher Attitude Inventory to measure changes in teacher attitudes. The teachers submitted written evaluations of the seminar and ratings of each student's attitude toward reading.

The students were tested at the beginning and end of the five-week instructional sessions with the Gray Oral Reading Test and the California Test of Personality. They also completed a questionnaire concerning the instructional sessions and their attitudes toward reading.

Schirmer and Navarre report a mean gain of .29 years for junior high school students and .8 years for senior high students. The only significant correlation found between achievement and personality test scores was an inverse correlation between reading achievement and school relations for the junior high pupils. This relationship suggests that student attitude toward school deteriorated as reading skills improved. No significant correlations were found between gains on the Minnesota Teacher Attitude Inventory and the informal test of knowledge of methodology. Nine of the ten teachers showed improvement on the informal test.

To draw any valid conclusions from this study, one needs more information than is provided. The investigators gave vague and incomplete descriptions of the teachers and students involved in the study. To what extent did the promise of six weeks of pay for 50 hours of instruction (with a class size of three or four students) attract the teachers who volunteered? What precisely do the investigators mean when they describe the students as "seriously disabled"? Why did the investigators choose the Gray Oral Reading Test as their only measure of reading achievement? Were different forms used in the two testings? Were the teachers given sufficient training in administering it? Were oral reading methods stressed during instruction? If they were, why were they? Could one reasonably expect students with a probable history of seven to twelve years of reading failure to perform with confidence on a standardized oral reading test? How much real growth in reading was expected in five weeks of instruction? The investigators do not say.

Apparently, the same form of the informal test of knowledge of methodology was used at the beginning and the end of the seminar. No realiability coefficient is reported for the instrument. Schirmer and Navarre do not describe the test, but the possibility exists that the post-test results, coming only six weeks after the initial testing, were biased by the participants' familiarity with the items.

A more stringent attempt to evaluate a practicum emphasis inservice program is provided by Sawyer and Taylor (1968). Each semester for four semesters, groups of selected fourth-grade and junior high teachers met for three hours a day for 10 weeks at the Memphis State University Reading Center. Since the four inservice practicums were conducted during the school year, full-time substitutes were provided to meet with the teachers' classes while they were at the reading center. The substitutes then served as assistants when the teachers returned to school for the remainder of the day. The first two weeks of the seminar consisted of lectures, demonstrations, and discussions of effective methods of reading instruction. During the remaining eight weeks, the participants taught reading and language

arts to three students from their regular classes. The teachers brought the students with them to the center for the supervised instruction.

Two methods of evaluating the program's effectiveness were employed. Objective evaluation of student progress through standardized testing was accomplished, although the investigators do not name the instrument used or provide data on the results of the testing. The participants were also rated before and after the project by the school system's language arts and reading supervisors. Post-project evaluations were completed by the university consultants (Sawyer and Taylor), by the building principals, and by the teachers themselves.

The evaluations of all personnel agreed that the program was successful in producing desirable teacher behavior as expressed by the teaching practices. Least gains for all teachers were in providing inservice leadership. There was a consensus among the evaluators that all teachers gained in background knowledge of reading as a process, and that they all encouraged reading for pleasure among their students.

As an evaluation of an inservice program, Sawyer and Taylor's report is as good as Schirmer and Navarre's was deficient. It is apparent that the program was a continuous one, that released time was provided, that relatively small groups participated (approximately 15 teachers each semester), and that the practicum format provided for instruction in a realistic setting.

Another investigation which studied the effects of an intensive inservice program is reported by Heilman (1966). The study sought to determine whether a long-term intensive program of inservice education could develop a positive climate for professional growth among first grade teachers. Some aspects of a teacher's professional growth, according to Heilman, include knowledge of significant research in beginning reading instruction, extensive reading in the professional literature, the sharing of instructional methods and procedures, and the modification or extension of concepts relative to

reading instruction. Half of the teachers were randomly assigned to the experimental group while the rest served as the control group. Experimental group teachers participated in a two-week preschool seminar and in 25 two-hour seminar sessions held during the first 30 weeks of the school year. Each of these teachers was paid $150 for participating in the preschool seminar and $5 for each two-hour weekly meeting.

The students of all 30 teachers were pretested with the Pintner-Cunningham Primary Abilities Test and the Metropolitan Readiness Test. No significant differences between control and experimental pupils were found. At the end of the school year, the Stanford Achievement Test, Form X, was administered. The results were analyzed in terms of boys, experimental and control, and girls, experimental and control, as well as total groups.

Change in teacher behavior was assessed through a one-page teacher evaluation form which was completed each week during the project. In addition, each teacher prepared a final evaluation report. Heilman does not make clear whether all 30 teachers—or only the experimental teachers—completed these forms and reports, but the evidence cited below suggests that only the experimental teachers participated in the evaluation.

At the end of the school year, an analysis of variance of the achievement test scores revealed no significant difference between the experimental and control groups, although the mean differences favored the experimental group in all but one instance. Heilman found that the reading achievement of the experimental boys was helped by the treatment. Not only did the mean achievement of the experimental boys exceed that of the control boys in all five subtests of the Stanford Achievement Test, but their vocabulary mean also exceeded that of all girls and their word study mean exceeded that of the control girls.

An analysis of the teacher evaluation forms revealed that the 14 teachers listed 86 changes in teaching procedures, 97 modifications

of concepts relating to reading instruction, and the reading of 271 professional books and journal articles. The weekly evaluation also revealed the teachers' inability to assimilate all of the new concepts and techniques provided through the inservice meetings.

One of Heilman's conclusions is that this study did not result in significantly higher reading achievement for the students of the experimental teachers but that the differences in scores did favor these students in nine out of ten cases. However, Heilman reports and discusses his data concerning reading achievement as though significant differences actually did appear.

Several other aspects of Heilman's research are also open to question. The control group teachers—as well as the experimental teachers—had volunteered for the inservice program and were aware of the program's goals and activities. Heilman acknowledges the possibility that reading achievement in the classes of these teachers may have been influenced by this fact. But no attempt was made to determine the extent of this influence. If the teachers were interested enough in the project to volunteer, and if they were aware of the goals and activities of the project, it is possible that some effort was expended by them to realize some of the project's goals.

Since Heilman provides only the results of the self evaluations completed by the 14 experimental teachers, one is forced to conclude that no attempt was made to evaluate growth on the part of the control teachers. In light of the problems raised in the preceding paragraph, the lack of control teacher evaluation is a flaw in the research design. In addition, the means of evaluating growth among the experimental teachers is also open to question. Why was no other method—such as direct observation—utilized in this study? There is nothing wrong with teacher self reports as one method of evaluation, but other methods should also have been utilized during the school year.

DeCarlo and Cleland (1968) conducted a comprehensive inservice project consisting of a one-week preschool program, regularly

scheduled consultant services during the first 16 weeks of school, and bi-weekly meetings with all teachers involved in the study. Participants in the project were 12 teachers and their classes, grades 4-6, from four adjoining school districts. Half of the teachers were randomly selected for the experimental group with the other half serving as the control group.

Both groups participated in a one-week preschool program of inservice education on the campus of a nearby college. The control group took part in a program of children's literature for grades 4-6. The experimental teachers participated in a program which included such topics as the function of the basal reader and its accompanying activities, vocabulary development, comprehension development, study skills, content area reading skills and the like. During the first 16 weeks of school, the experimental teachers were involved in bi-weekly seminars which allowed them to study specific areas of reading instruction. A third facet of the sixteen-week inservice program was a regular series of visitations and consultations conducted by DeCarlo. Both groups of teachers were involved in this activity.

Pretests of students revealed no significant difference in intelligence or socioeconomic levels between the two groups. The initial reading achievement scores were significant in favor of the control group. At the end of the 16 weeks, the investigators conducted post-tests of student reading achievement, attitudes, and word analysis abilities as well as of teacher attitude and changes in teacher behavior.

No significant difference was found between control and experimental groups of students in reading achievement or pupil attitude. DeCarlo and Cleland point out that students in the control group were no longer achieving at a level of statistical significance. The investigators do report a significant difference between the groups on the measure of word analysis skills, but they do not report which group had achieved at a higher level.

The main benefit of the inservice program occurred in the area of teacher growth. Classroom behaviors and attitudes of teachers were assessed through evaluations of the bi-weekly meetings and the teacher visitations, and through observations made by DeCarlo while visiting the classrooms. A number of positive changes were noted. The investigators concluded that a continuous inservice education program which is geared to the needs of teachers can develop positive teacher attitudes toward competent reading supervision and toward attending inservice meetings without financial reimbursement or released time provided. They found that teachers effected changes freely and easily as they shared ideas and worked cooperatively in a permissive, sympathetic climate.

This report was complete in describing the content of the three factors of the inservice program and in providing adequate discussion of the findings and of the conclusions. However, the investigators do not state how the content of the inservice program was determined or how the teachers' needs were assessed, even though their conclusions stress, at several points, that the program was successful because it was geared to teachers' needs.

Synthesis

Design and procedures

Subjects. The majority of studies reviewed here involved teachers and students at the elementary level. The only investigations of inservice programs at the secondary level were reported by Schirmer and Navarre (1968) and by Smith and Otto (1969). Wall's (1965) subjects included junior high school teachers as well as elementary teachers, and Stauffer surveyed both elementary and secondary reading specialists.

Control of Variables. There are a number of variables which are difficult to control in a study that provides inservice training for a group of teachers and then measures the effects of this training by looking for significant growth in reading achievement among the students of these teachers. A partial listing of such variables would include: attitudes of teachers toward participating in an inservice program, previous training and teaching experiences of the participants, degree to which the teachers are able to modify the curriculum in order to utilize the techniques presented in the inservice program, availability of supplementary materials, and initial competence of participants as teachers of reading. Some of these factors can be controlled by random sampling or design balance, but none of the studies reviewed here attempted to apply such controls or cited the variables as possible confounding factors.

Needs Assessment. Two surveys reviewed were designed to assess the needs of teachers in order to determine the areas of reading instruction which should be emphasized through inservice instruction (Adams, 1964; Smith, Otto, and Harty, 1970). A third survey (Austin and Morrison, 1963) recommended that inservice programs

be based on the needs of the participants. There was no indication in any of the studies reviewed that the programs were, in fact, based on the needs of teachers or that a needs assessment had been made to determine the content of the inservice program. DeCarlo and Cleland (1968) state that inservice programs should be geared to teachers' needs and imply that their program was based on teacher needs—but they give no indication of how this was done.

Individual vs. Group Assistance. The question, as posed by Morrill (1966), does not seem to be whether to help teachers through individual consultation or group meetings. The inservice programs which offered the most promise were those combining preschool instruction in the summer with group meetings and individual observations and consultations during the school year.

Quality of Reports. The research reports themselves were of varying quality. While several investigators were conscientious in reporting sufficient data, others omitted so much information—or left so many questions unanswered—that one can place little faith in their reports. Such factors as descriptions of methods and samples used, definitions of terms, and descriptions of materials and instruments designed by the investigator are basic to any report of research, not only so that others may replicate the study but so that the study itself may be evaluated by the reader. Most professional journals do impose space limitations on their contributors, of course, and the researcher may argue that his report was incomplete due to such external restrictions. Yet the published report often comprises the sole evidence of the researcher's contribution. It is his responsibility to provide sufficient and pertinent data even within the space limitations.

Measurement and data collection

Teacher Change vs. Student Change. A number of studies attempted to measure the effect of inservice education programs by looking for significant improvement in reading achievement among the students of the inservice participants. In only one case (Trione, 1967) was

such significant improvement in reading revealed, even though evaluations of the teachers invariably revealed significant increases in knowledge of instructional techniques, diagnostic methods, and other areas of reading instruction. Where direct classroom observation was included in the teacher evaluation plan (Sawyer and Taylor, 1968; DeCarlo and Cleland), it was reported that the new methods and information gained through the inservice program were being put into practice.

Several reasons have been advanced to explain the apparent contradiction of significant instructional growth among the teachers but no corresponding improvement in reading achievement among their students. Schirmer and Navarre note that their program was too short to provide meaningful data. This was true of several other studies as well (Wall; Smith and Otto). It seems likely that the improvement in teacher instructional behavior, over a period of one semester, might be observable while a corresponding increase in the mean reading achievement over the same period of time will not be statistically significant. Related to this is the observation by Heilman (1966) that teachers were not able to assimilate all of the new techniques and ideas to which they were exposed. If the inservice program is of relatively short duration, it does not seem reasonable to expect immediate application of all new ideas and concepts by the teacher. And when the new concepts and techniques are applied in the classroom, the transfer to growth in student learning will take even more time.

Measurement of Student Change. Have the appropriate instruments been used to measure improvement in student reading achievement? Schirmer and Navarre's use of the Gray Oral Reading Test seems to be a particularly inappropriate means of evaluating the results of a five-week remedial program for junior and senior high school students. Even when standardized tests of silent reading have been used, the question of their appropriateness remains. Standardized group surveys are not sensitive enough to show significant, non-chance differences over the relatively short time spans of the inservice programs reported here.

Even if such norm-based tests were judged to be valid instruments for measuring short-term change, it is doubtful that they would be adequate for assessing student progress toward all of the goals of an inservice program. For example, one of Schirmer and Navarre's objectives was to help teachers stimulate interest in reading among their students; among Sawyer and Taylor's program goals were the encouragement of free reading and guidance in purposeful reading. While these, and other, inservice goals are all related to the student's reading achievement, the typical standardized group survey of reading achievement has not been designed to show a correlation between such factors and general "improvement" in reading.

In view of such problems in the use of standardized reading tests, it is not surprising that most of the studies reviewed here found no significant differences after post-testing students whose teachers had been involved in some type of inservice situation. Some of these studies, nevertheless, dwelt at some length on the "significance" of the trends favoring the experimental groups. In these cases, the investigators drew their conclusions based on non-significant data and did not stress reservations in their reports.

Measurement of Teacher Change. The reported methods of evaluating teacher improvement were of varying quality. Self reports in the form of questionnaires, attitude inventories, or open-ended evaluation forms were used by Wall, Morrill, Trione, Smith and Otto, and Heilman. The validity of information obtained solely through self reports must be questioned; Sawyer and Taylor, for example, found that poor teachers tended to view themselves as good teachers. The most complete methods of evaluating teacher improvement (Sawyer and Taylor; DeCarlo and Cleland) involved both self reports by the teachers and observations of the teachers by one or more specialists.

The studies themselves were thus influenced by the means employed of assessing teacher improvement. For example, both Heilman and DeCarlo and Cleland conducted studies which were similar in a number of respects: both involved preschool and bi-weekly inservice meetings; both concluded that teachers, working cooperatively,

could upgrade the effectiveness of their teaching; and neither found significant improvement in the reading achievement of the experimental students. The DeCarlo and Cleland report, however, clearly contains the superior evaluation design. The investigators obtained their information in several ways rather than exclusively through teacher self reports. The regular schedule of supervisor observations and consultations served not only as an essential component of the inservice education effort but also as a means of evaluating the program's effect and of assessing changes in teacher behavior. Finally, the DeCarlo and Cleland design included evaluations of the control group of teachers as well as the experimental group. As a result, one is more likely to accept the conclusions of DeCarlo and Cleland than those of Heilman.

Attitude toward Inservice Meetings. The use of extrinsic motivations, such as monetary payments to participants as employed by Heilman and by Schirmer and Navarre, did not seem to be particularly effective. Neither does it appear to be practical in any large scale inservice effort planned by a school system. Smith, Otto, and Harty (1970) found that experienced teachers were more interested in non-credit programs directed to specific problems at specific grade levels than in university courses in reading. DeCarlo and Cleland noted that teachers reported positive attitudes toward inservice meetings which gave teachers what they wanted and needed. The teachers were not given released time and were not financially reimbursed.

Recommendations

What is the future of research applied to inservice programs in reading? Is the typical inservice program in reading amenable to study through an experimental design? Kasdon and Kelly claimed that their investigation demonstrated the effectiveness of a pure research design in the evaluation of an inservice program for teachers. When one considers the number of steps involved in inservice reading programs, however, it is doubtful that this claim can be fully supported. A typical inservice project in reading includes 1) an expression of need, by teachers or administrators, for improvement in some aspect of the total reading program; 2) a decision to meet the need through an inservice program; 3) the implementation of the program; 4) utilization by teachers of the new skills and knowledge presented in the program; 5) maintenance of the program's objectives by teachers and administrators following completion of the inservice program; and 6) improvement in student reading skills as a result of the teachers' participation in the inservice activities. In practice, such a sequence will take several months to several years to carry to completion.

Reduced to its most basic components, research dealing with inservice reading programs involves the measured effectiveness of the program's activities (the independent variable) upon the subsequent reading achievement of students (the dependent variable). The study must, of course, be carefully controlled so that the findings are clearly the result of manipulating the independent variable. But there is a great likelihood that the results will be obscured by the presence of uncontrolled or intervening variables and by the relatively long time span of most inservice programs.

The problem of measurement is another factor which complicates research efforts in the area. How should the effectiveness of an inservice program be measured? By looking for significant changes in the instructional practices of the teacher, or by looking for significant improvement in the reading achievement of the students of the teachers? The studies reviewed in this paper consistently reported teacher improvement but no corresponding reading improvement among the students. Some possible explanations for this apparent contradiction were discussed in the preceding section. Yet it hardly seems defensible to call an inservice program a success if there has been no measurable carry-over to the students of the participants.

Serious questions must be raised concerning the use of student gain scores as the sole criterion for evaluating the effectiveness of instruction. Considerable evidence is available to cast doubt on the use of such scores as a valid and reliable criterion measure. Campbell (1968) investigated the use of pupil gain scores as a criterion of teacher effectiveness. He concluded that caution should be exercised in utilizing the pupil gain scores from a standardized achievement test as a criterion of teacher effectiveness. He found no significant teacher variables which consistently associated themselves with effective or ineffective teachers.

Yet an inservice program in reading must take into account the changes it ultimately produces in student reading achievement. Kasdon and Kelly's study may be criticized in this respect. In addition to their conclusion that a pure research design may be used in evaluating an inservice program, they stated in their introduction that the inservice program was evaluated in terms of changes in instruction that occurred in the classrooms of the teachers who participated. While their study did show that teachers who had participated in a summer inservice program were more likely to assign appropriate instructional reading materials to their pupils, there was no attempt to assess actual instructional changes among these teachers or to determine change in student reading achievement.

Problems in research design and measurement seem to be inherent in an inservice program of any significant scope and duration. The most sophisticated statistical treatment of data is of no value if the data is derived from an uncontrollable design and inappropriate instruments. Accordingly, future researchers who study the effect of inservice teacher education upon student reading achievement should consider utilizing a variety of formal and informal evaluation techniques. In monitoring the inservice program's impact upon reading instruction, for example, such data collection techniques as observations, interviews, check lists, rating scales, and questionnaires might be used. Student reading achievement could be assessed through the use of informal or teacher-made tests, analysis of worksheets, observations, informal inventories, interviews, check lists, anecdotal records, and sample products. Criterion-referenced tests—geared directly to the objectives of the inservice program—could be written to supplement (or replace) standardized reading surveys as summative measures of achievement. By adopting the techniques of continuous evaluation, the investigator will have the opportunity to collect timely, relevant data concerning the effect of the inservice program upon classroom instructional practice and the effects of instructional practices upon student reading achievement.

Despite the recommendation that an evaluation design be used in the study of total inservice programs, there are numerous aspects of inservice education programs in reading which may be studied through experimental designs. The following recommendations for research flow directly from the synthesis of research reviewed earlier:

Investigations dealing with inservice education of teachers in reading have often not adhered to basic standards of empirical research. Few, if any, of the studies reviewed were reported in sufficient detail to permit replication. It is recommeded that future investigators

1) provide pertinent information concerning samples, methods, materials, and instruments so that the report may be evaluated and the study may be replicated;

2) identify and apply appropriate control over factors which will influence the outcome of the study; and
3) state the limitations or deficiencies of the study.

The goal of an inservice program is to effect change in teacher attitudes and/or behavior so that subsequent instruction and student learning is enhanced. There is a considerable body of research dealing with the change process, group interaction, and effecting change in the individual. It is recommended that future research dealing with the inservice education in reading build upon the literature concerned with the change process and related areas.

An inservice program will not be successful if it does not meet the current needs of teachers. It is recommended that

1) research be conducted which compares the self-perceived instructional needs of teachers with a needs assessment obtained through other means (such as direct observation, personal interviews, unobtrusive or nonreactive measures, and the like); and
2) research be conducted which assesses the needs of teachers and bases the inservice program directly upon those needs.

Most of the research reviewed describes inservice projects with elementary teachers. It is recommended that research efforts in inservice education be expanded to include problems and programs in reading at the secondary level.

Existing research in the field has often been sporadic and of short duration. It is recommended that future research

1) extend the inservice program over longer periods of time (such as regular sessions throughout one or two school years); and
2) provide for periodic followup on teachers who have participated in the inservice program to determine the carryover of skills initially gained through the program.

The main content of the inservice programs described in the studies reviewed here dealt with techniques of diagnosis, remedial instruction, and instruction in word attack and comprehension skills. It is

recommended that research or evaluation studies be made of inservice programs emphasizing such affective areas as developing and promoting reading interests, enhancing personal growth through reading, and promoting enjoyment of literature.

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Other ERIC/CRIER+IRA Publications

The following ERIC/CRIER+IRA publications are available from the International Reading Association, Six Tyre Avenue, Newark, Delaware, 1971

Bonnie Davis: *A guide to information sources for reading*

An annotated and directive compilation of potential sources in reading and related fields, available from IRA to members for $2.00 and to nonmembers for $2.50.

Edward G. Summers, Ed. *20 Year Annotated Index to* The Reading Teacher

Available from the International Reading Association for $3.00 to members of the Association and $3.50 to nonmembers. It is also available from EDRS (ED 031 608) in microfiche for $0.65.

Interpretive Papers

The following paper is the first of a series analyzing discrete topics for specific audiences but offering useful information to anyone interested in the subject. Available from IRA for $1.00 to members and $1.50 to nonmembers. Microfiche is available from EDRS for $0.65.

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The pamphlets below are designed to answer parental questions on reading and are available from IRA in single copies or in quantity for prices as low as $0.20 each for 100 copies or more. Microfiche is available from EDRS for $0.65.

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Leo Fay: *Organization and Administration of School Reading Programs* (ED 046 677)

James L. Laffey: *Methods of Reading Instruction* (ED 047 930)

Roger Farr: *Measurement of Reading Achievement* (ED 049 906)

Leo Fay: *Reading Research: Methodology, Summaries, and Application* (ED 049 023)